

# METHOD OF FABRICATING A GROUND-BALL BONDING STRUCTURE WITHOUT TRAPPED AIR FOR BALL GRID ARRAY APPLICATION

## ABSTRACT OF THE DISCLOSURE

A method for fabricating a ground-ball bonding structure on a TBGA package is proposed, which is characterized by the forming of a plurality of air vents around the ground-ball pad and cut all the way into the tape until reaching the bottommost surface of the tape. During solder-reflow process, this allows the trapped air in the via hole due to solder material being filled into the via hole to the outside atmosphere during solder-reflow process. Compared to the prior art, since the proposed method allows substantially no air-filled voids to be left in the via hole, the resulted ground ball would be fully collapsed against the heat sink and therefore coplanarized with respect to the signal ball. The coplanarity of the overall ball grid array would allow the TBGA package to be mounted properly onto a printed circuit board during SMT (Surface Mount Technology) process. In addition, the proposed method allows a reliable bonding between the ground ball and the heat sink, thus assuring the grounding effect of the resulted TBGA package.

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